



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

EVIDENCE THAT MANY BIRDS REMAIN MATED FOR LIFE

By F. C. WILLARD

ONE OF THE strongest impressions I had as a boy, and later as a student, in reading various books and papers on the life histories of birds, was the comment frequently made therein that this or that species remained paired or mated for life. It was soon borne in upon me that this assertion was applied practically to raptores only. While I turned this over in my mind every time I met the statement I always wondered why it was so.

Not until I went to southern Arizona, in 1896, did I begin real active field collecting. I had collected some in Illinois, but never days or weeks at a stretch as I began to do in Arizona. Here three special fields drew my attention annually, the San Pedro River valley near Fairbanks, the Huachuca Mountains, and the vicinity of Tucson. After a few consecutive seasons spent in working these sections, I began to realize that I could expect to find a pair of some certain species of birds nesting within a very short distance of a given spot every year, and I at once began to wonder if it were possible that an occasional pair of birds other than raptores remain mated for life.

Not to spend more time in following the processes of my mind in regard thereto, I want to give some specific instances which have led me to the opinion that it is more usual than unusual for land birds to remain mated for life. Having had no experience with water birds, I shall exclude them from my conclusions.

The flycatchers are a well represented family in Arizona, and there are species that are found in all three of the sections above mentioned and other species that are found in but one. The Vermilion Flycatcher (*Pyrocephalus rubinus mexicanus*) is one of the former. A pair nested every year in the trees about our house in Tombstone. We all watched for their arrival. Seldom did a third bird of this species appear on the place, though every season the male went through his mating antics just as though he was courting a new spouse. How do I know it wasn't a new spouse? I don't know it except that my observations have led me to make up my mind to the point of conviction that it was the same pair year after year. The selection of the same forks for the different nests each season, the similarity of the eggs as far as they were examined (I did not collect any from this pair), the lack of fear they possessed, so marked in comparison to that shown by others of the same species in other places, all these helped to convince me.

Along the San Pedro River I had certain willow trees marked out, in each of which I always expected to find a Vermilion Flycatcher's nest. If it did not happen to be in the exact tree it was sure to be in an adjacent one, and this in spite of the fact that when I collected a nest of this bird I always tried to take it on the fork if possible. One pair always selected such a large fork that I could not collect it, and the result was that the same few forks were used by this pair each season, sometimes one and sometimes the other. Frequently the same fork was used twice or oftener in the same year.

In the Huachuca Mountains there was a certain route I used to cover on a three day's trip. Along this route I had certain pairs of the various birds "spotted". The Coues Flycatchers (*Contopus pertinax pallidiventris*) were particularly reliable and in ordinary seasons I could give many of the particulars in regard to the different nests, before I had actually seen them, with a

degree of surety that was surprising to myself. The number of eggs to be expected, the shape, shade of ground color, and style of markings could be given with great accuracy. The general characteristics of the nests, whether compact, deeply cupped and neatly finished, or the opposite, were also readily "called" before the nest was seen. The actions of the different pairs around the nests, etc., were all corroborative to an extent that seemed to justify my assumption that the same individuals were there each year. Among the other flycatchers, the Buff-breasted (*Empidonax f. pygmaeus*), Traill (*Empidonax t. trailli*), Arizona Crested (*Myiarchus m. magister*), Ash-throated (*Myiarchus cinerascens*), Sulphur-bellied (*Myiodynastes luteiventris*), and Olivaceous (*Myiarchus l. olivascens*), could all be used to further strengthen my conclusions.

Hummingbirds also may be cited. One certain Rivoli Hummingbird (*Eugenes fulgens*) always built in a certain small sycamore or in a neighboring maple. Unless disturbed before the eggs were laid I could count on a set from this bird. However, if disturbed before the eggs were laid she left that locality and I could not find where she then built; but the next year was sure to see her back to the old homestead again. A Blue-throated Hummingbird (*Coeligena clemenciae*) built nest after nest on the same hook. One that I collected showed four stories at least. When I took it I put another hook in its place and had the pleasure of photographing the young raised in a nest built on it. Broad-tailed (*Selasphorus platycercus*) and Costa (*Calypte costae*) hummingbirds also helped me along to a certain extent. One of the latter always built on a hammock hook hanging from a rafter in the porch of a neighbor's house. Another always built on the same branch of an ash tree near the San Pedro River.

Among the warblers, Sonora Yellow (*Dendroica aestiva sonorana*) and the Lucy (*Vermivora luciae*) were particularly convincing. Not only did they select the same vicinity for their nests each year, but the type of the eggs was so consistently the same that even an unwilling observer would have had to acknowledge the strong probability that what I am trying to demonstrate was a fact. Painted Redstarts (*Setophaga picta*) were also good ones to count on. The other warblers were so rare and hard to find that they would hardly prove convincing, though both Grace (*Dendroica graciae*) and Olive (*Peucedramus olivaceus*) warblers could be observed in the same bit of forest each year.

In one certain clump of fir trees I could always count upon finding two pairs of Western Evening Grosbeaks (*Hesperiphona v. montana*) though I was not always successful in finding both nests. This I believe was largely because I was not persistent enough. A pair of Western Tanagers (*Piranga ludoviciana*), could also be counted upon here. In fact, this group of trees bears me out in my belief with the following list which I could always find here. Besides the two mentioned, there were Western Robin (*Planesticus m. propinquus*), Cones Flycatcher (*Contopus pertinax pallidiventris*), Western Wood Pewee (*Contopus richardsoni*), Cassin Kingbird (*Tyrannus vociferans*), Plumbeous Vireo (*Lanivireo s. plumbeus*), Hepatic Tanager (*Piranga hepatica*), and Long-crested Jay (*Cyanocitta s. diademata*). Across the trail, but near enough to be listed with the others, was a pair of Western Warbling Vireos (*Vireosylva g. swainsoni*). I find that my notebook also tells me to look for one pair each of Arizona Junco (*Junco phaeonotus palliatus*), Red-faced Warbler (*Cardellina rubrifrons*), Virginia Warbler (*Vermivora virginiae*), Western House Wren (*Troglodytes aedon parkmani*), Canyon Wren (*Catherpes m. conspersus*), and Painted Redstart (*Setophaga picta*) in this immediate vicinity. By immediate I mean within a radius of one hundred yards.

Among the woodpeckers, one of the best evidences that the same pair remains together year after year is the series of nesting cavities excavated up and down a single dead tree or branch. A pair of Cabanis Woodpeckers (*Dryobates v. hyloscopus*) had nested for several seasons in the dead top of a tall pine. One winter, this broke off and lodged in the top of an adjoining pine. Even with their nest site in this apparently insecure position the woodpeckers were unwilling to leave it, and their new nest was found dug in the same old tree top in its inverted position. Along the San Pedro River the Cactus Woodpecker (*Dryobates s. cactophilus*) is the only one nesting at all commonly. In the lines of willows bordering the irrigation ditches and in the small groups found along the river banks, I had quite a list of pairs whose nests I could count upon finding within certain circumscribed areas. They exhibited individual characteristics. One pair never dug its nest lower than twenty feet from the ground and usually selected a site that overhung the water. Another liked short stubs not over five or six feet tall. Another was partial to fence posts. While these selections were not invariably followed they were so usual that I always began my search by examining all the available sites of that character before looking at others and was usually successful in my first search. In the giant cactus around Tucson, the Gilded Flicker (*Colaptes chrysoides*) and the Gila Woodpecker (*Centurus uropygialis*) were very common and I have a long list of pairs of these two species with specified groups of cactus where they are to be found.

Of the doves, the Inca Dove (*Scardafella inca*) and Mexican Ground Dove (*Chaemepelia p. pallescens*) illustrate my point the best. One pair of Inca Doves in Tombstone nested either in an elderberry tree on a certain corner, or in a mulberry tree some seventy-five yards farther down and across the street. Even repeatedly losing their eggs failed to disturb them. One pair of Mexican Ground Doves always nested in a certain clump of willow brush or an adjacent large willow tree. I believe the other two nesting doves, the White-winged Dove (*Melopelia asiatica*) and Mourning Dove (*Zenaidura m. carolinensis*) would offer as good examples were it not that the locality where I most regularly collected them, along the San Pedro River near Fairbanks, was a favorite hunting ground for the sportsmen of that region and that the pairs were constantly being broken up by one or the other of the birds being shot.

The Canyon Towhee (*Pipilo f. mesoleucus*) and Abert Towhee (*Pipilo aberti*) could both be relied upon to nest regularly in given spots. A pair of Canyon Towhees had their first nest of the season always in the vines growing on our house. Their second nest was in a nearby umbrella tree. Their third nest was either in this same tree or in a small cottonwood just outside the fence. In this case the marked similarity of the eggs each year was very good evidence that the same bird laid them, and as the two birds were resident and hung around the house all the year it seems almost an assured fact that she had the same mate each time. Along the San Pedro River I had a series of pairs of the Abert Towhee located from which I could secure sets whenever I chose, during the season. As many of these birds built in situations where I could collect nothing but the nests (i. e., without the supporting branches) they frequently used exactly the same site year after year.

I could multiply the illustrations used and make them include the Anthony Green Heron (*Butorides v. anthonyi*), Western Yellowthroat (*Geothlypis t. occidentalis*), Cooper Tanager (*Piranga r. cooperi*), Western Blue Grosbeak (*Guiraca c. lazula*), Arizona Pyrrhuloxia (*Pyrrhuloxia s. sinuata*), Cassin and West-

ern kingbirds (*Tyrannus vociferans* and *Tyrannus verticalis*), the three orioles, Bullock, Arizona Hooded and Scott (*Icterus bullocki*, *Icterus c. nelsoni* and *Icterus parisorum*), the last a particularly good example to cite, Lead-colored Bush-tit (*Psaltriparus plumbeus*), the jays, nuthatches and wrens, and in fact almost the whole list of nesting birds as I met them year after year, to demonstrate the conclusions arrived at, namely, that it is far more usual for the same pair of birds to remain mated for life than it is unusual.

The nature of these observations is such that they are not capable of scientific proof but they are very convincing nevertheless. One of my most valued notebooks is based on the facts enumerated and bears the title of "Nest census of known breeding pairs".

Farmingdale, Long Island, New York, February 4, 1918.

A RETURN TO THE DAKOTA LAKE REGION

By FLORENCE MERRIAM BAILEY

(Continued from page 137)

IV. THE GREBE OF THE SILVERY THROAT

A flash of a long silvery throat disappearing in a lake had haunted me for four years, for it had been my first sight of the Western Grebe, the silvery-throated King of the Grebes. That was on one of the Sweetwater lakes and now, on my return to them, a distant glimpse of another white throat at the foot of the north lake filled me with hope. So, starting out in the morning, I followed down the shore under cover of the tules, keeping a sharp lookout, bending over in the low tules, but standing erect, well hidden, in the high ones, as they rose above my head. Even when exposed, there was much in my favor, for the birds of the lake had to look at me toward the light and, used to brown cattle splashing and shoving through the reeds and canes, in a poor light might not discriminate between my bent, brown and green figure and the low familiar forms. In the shallow water, in imitation of silent paddling, I waded slowly, keeping my boots under water, and in places where the water was not too deep, set up my camp stool behind a thin screen of waving tule, watching at my leisure, content to let the green rods wave across my glass, if only I could be unobserved.

Of course I was observed by some of the tule population. Two Coots went splashing out into the lake, another sputtered and scolded, and a Ruddy Duck rattled his castanets close by; but a Sora ran his scale unafraid and the birds out on the lake went about their business quite oblivious of me. The only exceptions were due to bad breaks on my part. Once I raised up full height above the low tules, making a passing Crow caw distractedly, and sending three swimmers inside a tule wall. As I immediately took the hint and sat down, the swimmers came out again reassured.

It was a wonderful morning to me, for I had never really seen the King of Grebes before. At the remote foot of the lake, I found his breeding grounds. A high stand of tules rods wide with indented bays and jutting tule points, offered safe cover for nesting colonies, while the Big Ditch, approached by a wind-